

References

1. Reihnsaus, E., M. Innis, N. MacIntyre, and S.B. Liggett. 1993. Mutations in the gene encoding for the β_2 -adrenergic receptor in normal and asthmatic subjects. *Am J Resp Cell Mol Biol* 8:334-339.
- 5 2. Liggett, S.B. 1995. Functional properties of human β_2 -adrenergic receptor polymorphisms. *News in Physiologic Sciences* 10:265-273.
3. Green, S., J. Turki, M. Innis, and S.B. Liggett. 1994. Amino-terminal polymorphisms of the human β_2 -adrenergic receptor impart distinct agonist-promoted regulatory properties. *Biochem* 33:9414-9419.
- 10 4. Green, S.A., G. Cole, M. Jacinto, M. Innis, and S.B. Liggett. 1993. A polymorphism of the human β_2 -adrenergic receptor within the fourth transmembrane domain alters ligand binding and functional properties of the receptor. *J Biol Chem* 268:23116-23121.
5. Green, S.A., J. Turki, P. Bejarano, I.P. Hall, and S.B. Liggett. 1995.
- 15 Influence of β_2 -adrenergic receptor genotypes on signal transduction in human airway smooth muscle cells. *Am J Resp Cell Mol Biol* 13 :25-33.
6. Liggett, S.B. 1996. The genetics of β_2 -adrenergic receptor polymorphisms: relevance to receptor function and asthmatic phenotypes. In *The Genetics of Asthma*. S.B. Liggett and D.A. Meyers, editors. Marcel Dekker, New York. 455-478.
- 20 7. Turki, J., J. Pak, S. Green, R. Martin, and S.B. Liggett. 1995. Genetic polymorphisms of the β_2 -adrenergic receptor in nocturnal and non-nocturnal asthma: evidence that Gly16 correlates with the nocturnal phenotype. *J Clin Invest* 95:1635-1641.
8. Hall, I.P., A. Wheatley, P. Wilding, and S.B. Liggett. 1995. Association of
- 25 the Glu27 β_2 -adrenoceptor polymorphism with lower airway reactivity in asthmatic subjects. *Lancet* 345:1213-1214.
9. Martinez, F.D., P.E. Graves, M. Baldini, S. Solomon, and R. Erickson. 1997. Association between genetic polymorphisms of the beta2-adrenoceptor and response to albuterol in children with and without a history of wheezing. *J Clin Invest*
- 30 100:3184-3188.
10. Dewar, J.C., J. Wilkinson, A. Wheatley, N.S. Thomas, I. Doull, N. Morton, P. Lio, J. Harvey, S.B. Liggett, I.S. Holgate, and I.P. Hall. 1997. The

glutamine 27 β_2 -adrenoceptor polymorphism is associated with elevated immunoglobulin E levels in asthmatic families. *J Allergy Clin Immunol* 100:261-265.

11. Tan, S., I.P. Hall, J. Dewar, E. Dow, and B. Lipworth. 1997. Association between beta 2-adrenoceptor polymorphism and susceptibility to bronchodilator desensitization in moderately severe stable asthmatics. *Lancet* 350:995-999.
12. Kobilka, B.K., R.A.F. Dixon, T. Frielle, H.G. Dohlman, M.A. Bolanowski, I.S. Sigal, T.L. Yang-Feng, U. Franke, M.G. Caron, and R.J. Lefkowitz. 1987. cDNA for the human β_2 -adrenergic receptor: a protein with multiple membrane spanning domains and a chromosomal location shared with PDGF receptor gene. *Proc.Natl.Acad.Sci., USA* 84:46-50.
13. Kobilka, B.K., T. Frielle, H.G. Dohlman, M.A. Bolanowski, R.A.F. Dixon, P. Keller, M.G. Caron, and R.J. Lefkowitz. 1996. Delineation of the intronless nature of the genes for the human and hamster β_2 -adrenergic receptor and their promoter agonists; *J.Biol.Chem.*: 262:7321-7327.
14. Parola, A.L. and B.K. Kobilka. 1994. The peptide product of a 5' leader cistron in the beta 2 adrenergic receptor mRNA inhibits receptor synthesis. *J Biol Chem* 269:4497-4505.
15. Jones, A.S. 1963. Use of Alkyltrimethylammonium Bromide for the Isolation of Ribo- and Deoxyribo-nucleic Acid. *Nature* 199:280-282.
16. Nikiforov, T.T., R.B. Rendle, P. Goelet, Y.-H. Rogers, M.L. Kotewicz, S. Anderson, G.L. Trainor, and M.R. Knapp. 1994. Genetic Bit Analysis: a solid phase method for typing single nucleotide polymorphisms. *Nucleic Acids Research* 22:4167-4175.
17. McGraw, D.W., E.T. Donnelly, M.G. Eason, S.A. Green, and S.B. Liggett. 1998. Role of β ARK in long-term agonist-promoted desensitization of the β_2 -adrenergic receptor. *Cell Signal* 10:197-204.
18. McGraw, D.W. and S.B. Liggett. 1997. Heterogeneity in β ARK expression in the lung accounts for cell-specific desensitization of the β_2 -adrenergic receptor. *J.Biol.Chem.* 272:7338-7343.
19. Smith, P.K., R.I. Krohn, G.T. Hermanson, A.K. Mallia, F.H. Gartner, M.D. Provenzano, E.K. Fujimoto, N.M. Goeke, B.J. Olson, and D.C. Klenk. 1985. Measurement of protein using bicinchoninic acid. *Anal.Biochem.* 150:76-85.

20. Calnan, B.J., B. Tidor, S. Biancalana, D. Hudson, and A.D. Frankel. 1991. Arginine-Mediated RNA Recognition: The Arginine Fork. *Science* 252:1167-1171.
21. Fedyk, E.R., A.A. Looney, and R.P. Phipps. 1996. Regulation of IgE and cytokine production by cAMP: implications for extrinsic asthma. *Clin Immunol Immunopathol* 81:101-113.
22. Themmen, A.P.N., J.W.M. Martens, and H.G. Brunner. 1997. Gonadotropin receptor mutations. *J Endocrinol* 153:179-183.
23. Chattopadhyay, N., A. Mithal, and E.M. Brown. 1996. The calcium-sensing receptor: a window into the physiology and pathophysiology of mineral ion metabolism. *Endocr Rev* 17:289-307.
24. Rosenthal, W., A. Antaramian, S. Gilbert, and M. Bimbaumer. 1993. Nephrogenic diabetes insipidus: a V2 vasopressin receptor unable to stimulate adenylyl cyclase. *J.Biol.Chem.* 268:13030-13033.
25. Gether, U., J.A. Ballesteros, R. Seifert, E. Sanders-Bush, H. Weinstein, and B.K. Kobilka. 1997. Structural instability of a constitutively active G protein-coupled receptor. *J.Biol.Chem.* 272:2587-2590.
26. Kotanko, P., A. Binder, J. Tasker, P. DeFreitas, S. Kamdar, A.J. Clark, F. Skrabal, and M. Caulfield. 1997. Essential hypertension in African Caribbean's associates with a variant of the beta2-adrenoceptor. *Hypertension* 30:773-776.
27. Large, V., L. Hellstrom, S. Reynisdottir, F. Lonnqvist, P. Eriksson, L. Lannfelt, and P. Amer. 1997. Human beta-2 adrenoceptor gene polymorphisms are highly frequent in obesity and associate with altered adipocyte beta-2 adrenoceptor function. *J Clin Invest* 100:3005-3013.
28. Thomson, J.A. et al. 1998. Embryonic Stem cell lines derived from human blastocysts. *Science* 282:1145-1147.
29. Yamada K, et al., 1999. Polymorphism in the 5'-leader cistron of the β_2 -adrenergic receptor gene associated with obesity and type 2 diabetes. *J. Clin. Endocrinol. & Metabol.* 84:1754-1757, 1999.